

## **Effects of Sucrose and some Cryoprotectants on Post-Thaw Sperm Quality (Spermatozoa Motility) and Fertilization of the Mesopotamian Catfish (*S. triostegus*, H. 1843)**

**Ahmet İlker Mermer<sup>1</sup>, Zafer Dođu<sup>2</sup>**

<sup>1</sup>Şanlıurfa Agriculture and Forestry Provincial Directorate, İmambakır M., 702nd S. No: 6, Haliliye/Şanlıurfa, TÜRKİYE

<sup>2</sup>Department of Aquaculture, Bozova Vocational School, Harran University, 63850, Bozova, Şanlıurfa, TÜRKİYE

### **Abstract**

This study was conducted to investigate the effects of cryoprotectants such as sucrose and Dimethyl sulfoxide (DMSO), Methanol, and Methylglycol, along with a glucose diluent, on the post-thaw spermatozoa motility and fertilization of *Silurus triostegus* larvae in the Atatürk Dam Lake. The 4-5 year old *S. triostegus* used in the study were caught from the Atatürk Dam Lake in Şanlıurfa province. Post mortem, the examinations of sperm samples taken from *S. triostegus* through abdominal massage were conducted in the laboratories of the Fisheries Department at Harran University Bozova Vocational School. After the examination, those with 80% and above motility and spermatozoa density of 9.00-14.00 X 10<sup>9</sup>/ml were selected. Sperms were diluted at a ratio of 1/3 with a glucose sperm diluent containing 5% Dimethyl sulfoxide (DMSO), Methanol, or Methylglycol as one of the cryoprotectants, and 50 mM sucrose, 20% egg yolk, and 0.3 M glucose at 4 °C. The control group sperm diluent used was a glucose sperm diluent containing 10% DMSO, Methanol, or Methylglycol, 50 mM sucrose, 20% egg yolk, and 0.3 M glucose. After the sperm was diluted, it was subjected to equilibration at 4 °C for 10 minutes. After being frozen in liquid nitrogen vapor for 12 minutes, it was stored in liquid nitrogen (-196 °C). After thawing, the spermatozoa motility rate was highest in the DMSO group at 30.00±3.51% (P<0.05). The highest fertilization rate was also found in the DMSO+Sucrose group (20.33±1.52) (P<0.05). In the sucrose control group, fertilized eggs (% 0.0±0.00) could not be detected. The study findings indicate that the glucose sperm diluent containing 5% DMSO and 50 mM sucrose is suitable for spermatozoa motility and fertility in *S. triostegus* after dissolution.

**Key Words:** *Silurus triostegus*, Sperm, Freezing, Sucrose, Cryoprotectant

\*: This study is a part of the master's thesis titled " **Effects of Sucrose Added to Diluent In Cryopreservation of Mesopotamian Catfish (*S. triostegus*, H. 1843) Semen Quality After Thawing** " by the first author.